

EDULiTO

Wireless and Wired Networks

Topic Tests



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Topic Test - Wired and wireless networks

1. (a) What is a local area network (LAN)? [2]

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(b) Give an example of one type of organisation that would use a LAN. [1]

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2.(a) What is a wide area network (WAN)? [2]

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(b) Give an example of one type of organisation that would use a WAN. [1]

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3. (a) What is meant by latency? [2]

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(b) Using an example explain what is meant by low latency in a network? [3]

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4. What is meant by bandwidth? [2]

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5. (a) What is data packet loss? [1]

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(b) What causes data packet loss? [1]

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(c) What does the network do to overcome the loss of data packets? [1]

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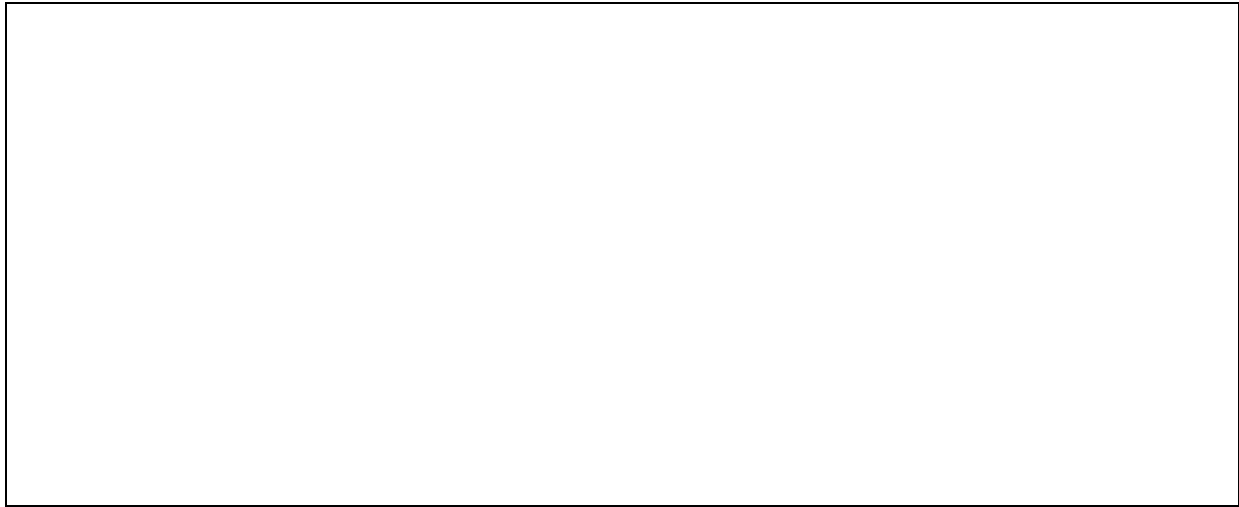
6. (a) Draw a diagram below to show the main features of a client server network that has three desktop PCs and a network printer. [3]



(b) List **TWO** advantages and **TWO** disadvantages of a client server network. [4]

Advantages	Disadvantages

7(a) Draw a diagram below to show the main features of a peer to peer network that has two desktop PCs and a wireless laptop connection. [3]



(b) List **TWO** advantages and **TWO** disadvantages of a peer to peer network. [4]

Advantages	Disadvantages

8. Each of the items below plays a role in the correct function of a local area network.

Match the item to its function (Draw a line to link them). [3]

Item
Wireless access points
Routers
Switches
NIC (Network Interface Controller/Card)
Transmission media

Function
This is installed inside a computer so that it can be connected to a network.
This is a hardware device that allows wireless devices to connect to a wired network using Wi-Fi.
This is the method or materials used to transmit data in a network e.g. using Ethernet cables, optical cables or wireless.
A device that forwards data packets along networks.
A device that connects devices together on a computer network, by using packet switching to receive, process and forward data to the destination device.

9. (a) What is a domain name server? [2]

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(b) Why is a domain name server necessary? [1]

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(c) What is a host computer? [1]

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(d) What is meant by cloud computing? [2]

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10. (a) What is a VPN? [2]

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(b) Explain why a company may encourage its staff to use a VPN? [1]

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Topic Test Wired and wireless networks - Mark Scheme			
Question Number	Answer	Additional Guidance	Mark
1 a	A local area network (LAN) is a group of computers and associated peripheral devices [1] connected to a server [1] within a small geographic area such as an office building or home.[1]	Max 2 marks	2
1 b	School/ any organisation that has networked computers on a single site or building.		1
2 a	A wide area network (WAN) is a network that is dispersed over a large geographical area [1]. It typically consists of two or more LANS [1] that have been connected together through public networks [1]	Max 2 marks	2
2 b	Government department/ any organisation that has networked computers over a number of geographically separated sites or buildings.[1]		1
3 a	Latency is the amount of time [1] a packet of data [1] takes to get from one point in the network to another [1].	Max 2 marks	2
3 b	If a network has low latency then the delay [1] between an input being processed and an output being produced is so fast that it is unperceived by humans[1] E.g. When you make a VOIP call/Financial Markets [1]		3
4	How quickly data can be transferred across a network. [1] As bandwidth increases, more information per unit of time can pass through the network.[1]		2
5 a	When a data packet that is sent never arrives at its destination [1]		1
5 b	Glitches, errors, or network overloading [1]		1
5 c	Data packets are retransmitted [1]		1
6 a	Server connected to hub/switch [1] PC(s) connected to hub/switch [1] Network printer connected to hub/switch [1]		3
6 b	Advantages <ul style="list-style-type: none"> • Network peripherals e.g. printers are controlled centrally [1] • Backups and network security can be controlled centrally [1] • Users can access shared data which is controlled centrally [1] • Software licences and installation for each workstation can be controlled centrally [1] 	Max 2 for advantages and 2 for disadvantages	4

GCSE Computer Science (9-1) –Wired and Wireless Networks - Topic Test

	<p>Disadvantages</p> <ul style="list-style-type: none"> • The server can be expensive to purchase [1] • Specialist staff such as a network manager is often needed [1] • If key parts of the network fails such as the server or the switch, a lot of disruption can occur at the client end [1] 		
7 a	<p>No Server [1] PC(s) connected to hub/switch [1] Laptop connects to wireless access point to hub/switch [1]</p>		3
7 b	<p>Advantages</p> <ul style="list-style-type: none"> • No need for a network operating system • Does not need an expensive server because individual workstations are used to access the files • No need for specialist staff such as network technicians because each user sets their own permissions as to which files they are willing to share. • Much easier to set up than a client-server network - does not need specialist knowledge • If one computer fails it will not disrupt any other part of the network. It just means that those files aren't available to other users at that time. • Peer to Peer can also be set up across the internet, where the internet is effectively acting as a hub. There can be thousands of computers within such a network. <p>Disadvantages</p> <ul style="list-style-type: none"> • Because each computer might be being accessed by others it can slow down the performance for the user • Files and folders cannot be centrally backed up • Files and resources are not centrally organised into a specific 'shared area'. They are stored on individual computers and might be difficult to locate if the computer's owner doesn't have a logical filing system. • Ensuring that viruses are not introduced to the network is the responsibility of each individual user • Although it is often the case that a password protected user account is set up on a machine, this does not have to be the case and so security is not as robust as a client server model. • Setting up a peer to peer network over the internet from scratch is highly technical and requires serious expertise, but actually joining an already set-up peer to peer network is relatively simple. 	<p>Max 2 for advantages and 2 for disadvantages</p>	4
8	<p>1 B 2 D 3 E 4 A 5 C</p>	<p>All correct 3 marks 3 correct 2 mark</p>	3

GCSE Computer Science (9-1) –Wired and Wireless Networks - Topic Test

9 a	Domain Name Servers (DNS) are the Internet's equivalent of a phone book. They maintain a directory of domain names [1] and translate them to Internet Protocol (IP) addresses. [1]		2
9 b	This is necessary because, although domain names are easy for people to remember, computers or machines, access websites based on IP addresses. [1]		1
9 c	The term "host" means any computer that has full two-way access to other computers on the Internet. [1] A host has a specific "local or host number" that, together with the network number, forms its unique IP address. [1]	Max 1	1
9 d	The practice of using a network of remote servers [1] hosted on the Internet to store, manage, and process data, [1] rather than a local server or a personal computer. [1]	Max 2	2
10 a	VPN, or virtual private network, is a network that is constructed by using public wires — usually the Internet [1] — to connect to a private network, such as a company's internal network. [1]		2
10 b	Workers can connect to their company's network from home. [1]		1 /42